

1 CLAIMS

2 What is claimed is:

3  
4 Claim 1. An article of manufacture capable of detecting  
5 the presence of a particular toxic substance comprising:

6 a substrate located on at least a portion of said  
7 article;

8 a biologically active ligand capable of recognizing an  
9 epitope of the particular toxic substance on at least a  
10 portion of said substrate; and

11 a biological activity maintaining matrix adapted to  
12 immobilize said biologically active ligand upon said  
13 substrate;

14 wherein said ligand is constructed and arranged to  
15 produce a visual indicator upon recognition of said toxic  
16 substance.  
17

18 Claim 2. The article of manufacture in accordance with  
19 claim 1 wherein:

20 said substrate is flexible.

21 Claim 3. The article of manufacture in accordance with  
22 claim 1 wherein:

23 said substrate is releasably secured to said article of  
24 manufacture.

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2           Claim 4. The article of manufacture in accordance with  
3 claim 1 wherein:

4           said substrate is permanently secured to said article of  
5 manufacture.

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7           Claim 5. The article of manufacture in accordance with  
8 claim 1 wherein:

9           said substrate is formed integral with said article of  
10 manufacture.

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12           Claim 6. The article of manufacture in accordance with  
13 claim 1 wherein:

14           said substrate is a polymer film securable to said  
15 article.

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17           Claim 7. The article of manufacture in accordance with  
18 claim 1 wherein:

19           said biologically active ligand is immobilized in a  
20 particular icon shape.

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22           Claim 8. The article of manufacture in accordance with  
23 claim 1 wherein:

24           said ligand is selected from the group consisting of an

1 antibody, a single stranded nucleic acid probe, an aptamer, a  
2 lipid, a natural receptor, a lectin, a carbohydrate and a  
3 protein.  
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5 Claim 9. The article of manufacture in accordance with  
6 claim 1 further including:

7 a scavenger antibody, which is a particular  
8 biologically active ligand characterized as having a higher  
9 affinity for the particular toxic substance than said  
10 biologically active ligand, said scavenger antibody adapted  
11 to be immobilized upon said substrate and present in a  
12 sufficient amount to bind with the particular toxic substance  
13 up to and including a specific threshold concentration;

14 whereby said biologically active ligand will be  
15 prevented from binding with a detector antibody until the  
16 concentration of the particular toxic substance surpasses the  
17 specific threshold concentration.  
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19 Claim 10. The article of manufacture in accordance with  
20 claim 1 wherein:

21 the particular toxic substance is at least one member  
22 selected from the group consisting of at least one particular  
23 microorganism , biological materials containing the genetic  
24 characteristics of said at least one particular

1 microorganism, mutations thereof, nucleic acids, proteins,  
2 integral components of said at least one particular  
3 microorganism and combinations thereof.  
4

5 Claim 11. The article of manufacture in accordance with  
6 claim 1 wherein:

7 said ligand is a chromogenic ligand.  
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9 Claim 12. The article of manufacture in accordance with  
10 claim 1 wherein:

11 said biological activity maintaining matrix is a water  
12 gloss overprint varnish.  
13

14 Claim 13. The article of manufacture in accordance with  
15 claim 1 wherein:

16 said biological activity maintaining matrix is a  
17 gelcoat.  
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19 Claim 14. A process for detecting the presence of a  
20 particular toxic substance on an article of manufacture, said  
21 process comprising:

22 securing a substrate;

23 placing a biologically active ligand capable of  
24 recognizing and visually indicating contact with an epitope

1 of the particular toxic substance on at least a portion of  
2 said substrate;

3 contacting said biologically active ligand with a  
4 biological activity maintaining matrix adapted to immobilize  
5 said biologically active ligand upon said substrate; and

6 exposing said article of manufacture to the environment;

7 wherein contact with said particular toxic substance  
8 results in production of a visual indicator to confirm said  
9 contact.

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